WHAT IS CLAIMED IS:

1. A method of facilitating maintenance of a pump comprising the following steps:

providing a pump including wear parts, a processor and memory;

sensing at least one operating condition of the pump indicative of the operation of the pump;

generating operational data reflective of the sensed operating condition;

storing the generated operational data in the memory;

storing parts identification data identifying wear parts of the pump in the memory;

storing at least one predetermined level of operational information;

operating the processor to compare the stored predetermined level to the stored operational data and in dependent response thereto outputting information as to the desirability of replacing or repairing at least one selected wear part.

2. The method of claim 1 further comprising the following step:

repeating the steps of

sensing at least one operating condition of the pump indicative of the operation of the pump,

generating operational data reflective of the sensed operating condition,

storing the operational data in the memory, and thereafter

updating the stored operational data in dependent response to the sensing of the at least one operating condition.

3. The method of claim 1 further comprising the following steps:

retrieving parts identification data for the at least one selected part from the memory, and

outputting information identifying the at least one part whose replacement or repair is desired.

4. The method of claim 1 wherein the pump comprises a pumping element and the operational condition of the sensing step is a physical integrity of the pumping element of the pump.

5. The method of claim 4 wherein the pumping element is a diaphragm.

6. The method of claim 1 wherein the pump comprises a check valve and the operational condition of the sensing step is a reverse fluid flow through the check valve.

7. The method of claim 1 further comprising the following step:

providing at least one sensor.

8. The method of claim 1 further comprising the following step:

operating the processor to compare the stored predetermined level to the stored operational data and in dependent response thereto outputting information as to the desirability of modifying the operation of pump.

9. The method of claim 8 wherein the operational condition of the sensing step is an output flow rate of the pump.

10. The method of claim 8 wherein the operational condition of the sensing step is a cycle rate of the pump.

11. The method of claim 8 wherein the operational condition of the sensing step is an acceleration of a cycle rate of the pump.

12. The method of claim 8 wherein the pump comprises a pumping element and the operational condition of the sensing step is a temperature of the pumping element of the pump.

13. The method of claim 12 wherein the pumping element is a diaphragm.

14. The method of claim 8 wherein the pump is an air operated diaphragm pump comprising an air chamber and the operational condition of the sensing step is a back pressure in the air chamber.

15. The method of claim 8 wherein the pump comprises at least one pumping chamber and the operational condition of the sensing step is a filling rate of the pumping chamber.

16. The method of claim 8 wherein the operational condition of the sensing step is a suction pressure of the pump.

17. A method of modifying an operation of a pump comprising the following steps:

providing a pump, a processor and memory;

sensing at least one operating condition of the pump indicative of the operation of the pump;

generating operational data reflective of the sensed operating condition;

storing the generated operational data in the memory;

storing at least one predetermined level of operational information;

operating the processor to compare the stored predetermined level to the stored operational data and in dependent response thereto outputting information as to the desirability of modifying the operation of pump.

18. The method of claim 17 further comprising the following step:

repeating the steps of

sensing at least one operating condition of the pump indicative of the operation of the pump,

generating operational data reflective of the sensed operating condition,

storing the operational data in the memory, and thereafter

updating the stored operational data in dependent response to the sensing of the at least one operating condition.

19. The method of claim 17 wherein the operational condition of the sensing step is an output flow rate of the pump.

20. The method of claim 17 wherein the operational condition of the sensing step is a cycle rate of the pump.

21. The method of claim 17 wherein the operational condition of the sensing step is an acceleration of a cycle rate of the pump.

22. The method of claim 17 wherein the pump comprises a pumping element and the operational condition of the sensing step is a temperature of the pumping element of the pump.

23. The method of claim 17 wherein the pumping element is a diaphragm.

24. The method of claim 17 wherein the pump is an air operated diaphragm pump comprising an air chamber and the operational condition of the sensing step is a back pressure in the air chamber.

25. The method of claim 17 wherein the pump comprises at least one pumping chamber and the operational condition of the sensing step is a filling rate of the pumping chamber.

26. The method of claim 17 wherein the operational condition of the sensing step is a suction pressure of the pump.

27. The method of claim 17 wherein the pump comprises wear parts and the method further comprises the following steps:

storing parts identification data identifying wear parts of the pump in the memory; and

operating the processor to compare the stored predetermined level to the stored operational data and in dependent response thereto outputting information as to the desirability of replacing or repairing at least one selected wear part.

28. The method of claim 27 wherein the at least one wear part is a pumping element and the operational condition of the sensing step is a physical integrity of the pumping element.

29. The method of claim 28 wherein the pumping element is a diaphragm.

30. The method of claim 27 wherein the at least one wear part is a check valve and the operational condition of the sensing step is a reverse fluid flow through the check valve.

31. A pump comprising:

at least one wear part, a processor and memory, at least one sensor for sensing at least one operating condition of the pump, and a display,

the sensor communicating operational data reflective of the sensed operating condition to the processor, the processor storing the operational data in the memory and updating the stored operational data upon receipt of new operational data from the sensor,

the memory also comprising parts identification data identifying wear parts of the pump and at least one predetermined level of operational information,

the processor comparing the stored predetermined level to the stored operational data and in dependent response thereto outputting information to the display as to the desirability of replacing or repairing at least one selected wear part.

32. The pump of claim 31 wherein the processor is in communication with a stand alone computer.

33. The pump of claim 31 wherein the computer is a hand held computer.

34. The pump of claim 31 wherein the processor of the pump is linked to at least one other processor of another pump.

35. The pump of claim 31 wherein the wear part is a pumping element.

36. The pump of claim 35 wherein the pumping element is a diaphragm.

37. The pump of claim 31 wherein the wear part is a check valve and the sensor senses a reverse fluid flow through the check valve.

38. The pump of claim 31 wherein the processor further compares the stored predetermined level to the stored operational data and in dependent response thereto outputs information as to the desirability of modifying the operation of pump.

39. A pump comprising:

at least one wear part, a processor and memory, at least one sensor for sensing at least one operating condition of the pump, and a display,

the sensor communicating operational data reflective of the sensed operating condition to the processor, the processor storing the operational data in the memory and updating the stored operational data upon receipt of new operational data from the sensor,

the memory also comprising parts identification data identifying wear parts of the pump and at least one predetermined level of operational information,

the processor comparing the stored predetermined level to the stored operational data and in dependent response thereto outputting information to the display as to the desirability of replacing or repairing atleast one selected wear part modifying the operation of the pump.

40. The pump of claim 39 wherein the sensor is a flow meter and operational condition sensed by the sensor is an output flow rate of the pump.

41. The pump of claim 39 wherein the sensor comprises at least one proximity switch and operational condition sensed by the sensor is a cycle rate of the pump.

42. The pump of claim 39 wherein the operational data communicated by the sensor to the processor is an acceleration of a cycle rate of the pump.

43. The pump of claim 39 wherein the operational data communicated by the sensor to the processor is a temperature of a pumping element of the pump.

44. The pump of claim 39 wherein the pump is an air operated diaphragm pump comprising an air chamber and the operational condition sensed by the sensor is a back pressure in the air chamber.

45. The pump of claim 39 wherein the pump comprises at least one pumping chamber and the operational condition sensed by the sensor is a filling rate of the pumping

chamber.

46. The pump of claim 39 wherein the operational condition sensed by the sensor is a suction pressure of the pump.

47. The pump of claim 39 wherein the processor compares the stored predetermined level to the stored operational data and in dependent response thereto outputting information to the display as to the desirability of replacing or repairing at least one selected wear part.

48. A method of facilitating maintenance of a pump comprising the following steps:

providing a pump including wear parts, a processor and memory;

sensing at least one signature signal of the pump indicative of the operation of the pump;

storing the sensed signature signal in the memory;

storing parts identification data identifying wear parts of the pump in the memory;

storing at least one predetermined signature signal;

operating the processor to compare the stored predetermined signature signal to the stored sensed signature signal and in dependent response thereto outputting information as to the desirability of replacing or repairing at least one selected wear part.

49. The method of claim 48 wherein the signature signal is an acoustic signal.

50. The method of claim 48 wherein the signature signal is a vibratory signal.

51. A pump comprising:

at least one wear part, a processor and memory, at least one sensor for sensing at least one signature signal of the pump, and a display,

the sensor communicating the sensed signature signal to the processor, the processor storing the signature signal in the memory and updating the stored signature signal upon receipt of a new signature signal from the sensor,

the memory also comprising parts identification data identifying wear parts of the pump and at least one predetermined signature signal,

the processor comparing the stored predetermined signature signal to the stored signature signal and in dependent response thereto outputting information to the display as to the desirability of replacing or repairing at least one selected wear part.

52. The pump of claim 51 wherein the signature signal is an acoustic signal.

53. The pump of claim 51 wherein the signature signal is a vibratory signal.